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## AMENDMENTS TO THE CLAIM

- 1. (Currently Amended) A device for hemodialysis, comprising:
  - a cylindrical housing having a housing wall;
- a first cylindrical rotor having a first wall comprising a dialysis membrane, wherein said first cylindrical rotor is disposed coaxially within said housing and adapted to rotate therein, such that a first coaxial gap exists between the dialysis membrane and the housing wall;
- a second cylindrical rotor having a second wall, wherein said second cylindrical rotor is disposed coaxially within said first cylindrical rotor and adapted to rotate therein, such that a second coaxial gap exists between the first and second walls;
- a first inlet port in the housing wall for eenducing conducting blood into the first coaxial gap and a first outlet port in the housing wall for conducting dialyzed blood out of the first coaxial gap;
- a second inlet port in said housing for conducting dialysis fluid into the second coaxial gap and a second outlet port in said housing for conducting dialysate out of the second coaxial gap;
- a first rotational drive means for rotating the first cylindrical rotor within said housing; and
- a second rotational drive means for rotating the second cylindrical rotor within said housing.
- (Original) The device of Claim 1, wherein the first rotational drive means comprises a spinner magnet mounted to the first cylindrical rotor, and an external rotating magnetic field.
- 3 (Original) The device of Claim 1, wherein the second rotational drive means comprises a spinner magnet mounted to the second cylindrical rotor, and an external rotating magnetic field.
- 4. (Original) The device of Claim 1, wherein the first cylindrical rotor rotates with sufficient speed to create Taylor vorticity in the blood in the first coaxial gap.

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5. (Original) The device of Claim 1, wherein the second cylindrical rotor rotates with sufficient speed to create Taylor vorticity in the dialysate in the second coaxial gap.

## Claims 6 through 14 (Canceled)

15. (Currently Amended) The device of Claim 13 The device of Claim 1, wherein the second wall is impermeable to dialysis fluid.

## Claim 16 (Canceled)

- 17. (Currently Amended) The device of Claim 13 The device of Claim 1, wherein the second gap has a cross-section having a variable width.
- 18. (Currently Amended) The device of Claim 13 The device of Claim 1, wherein the second wall has a generally circular cross-section.

## Claims 19 through 28 (Canceled)

- 29. (Currently Amended) A device to facilitate mass transfer from a first fluid, comprising:
  - a housing having a housing wall;
  - a first rotor having a first wall comprising a filtration membrane, wherein said first rotor is disposed within said housing and adapted to rotate therein, such that a first gap exists between the filtration membrane and the housing wall;
  - a second rotor having a second wall, wherein said second rotor is disposed within said first rotor and adapted to rotate therein, such that a second gap exists between the first and second walls;
  - a first inlet port in the housing wall for conducting conducting the first fluid into the first gap and a first outlet port in the housing wall for conducting filtered first fluid out of the first gap;
    - a first rotational drive means for rotating the first rotor within said housing; and a second rotational drive means for rotating the second rotor within said housing.
  - 30. (Currently Amended) The device of Claim 29, further comprising:
    - a second fluid for receiving mass transferred from the first fluid; and
  - a second inlet port in said housing for conducting the <u>a</u> second fluid into the second gap and a second outlet port for conducting conducting the second fluid out of the second gap.

Appl. No.

10/797.510

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- 31. (Original) The device of Claim 29, wherein the first rotor rotates at a speed sufficient to create Taylor vorticity in the first gap.
- 32. (Original) The device of Claim 29, wherein the second rotor rotates at a speed sufficient to create Taylor vorticity in the second gap.
- 33. (Original) The device of Claim 29, wherein the second wall comprises a second filtration membrane.
- 34. (Original) The device of Claim 29, wherein the second wall is impermeable to fluid.
- 35. (Original) The device of Claim 29, wherein the first gap has a cross-section having a variable width.
- 36. (Original) The device of Claim 29, wherein the second gap has a cross-section having a variable width.
- 37. (Original) The device of Claim 29, wherein the first and second walls have generally circular cross-sections.
- 38. (Original) The device of Claim 37, wherein the first and second rotors are disposed coaxially within said outer housing.
- 39. (Original) The device of Claim 37, wherein the first and second rotors are not disposed coaxially within said outer housing.

Claims 40 through 60 (Canceled)